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(54) **Compact cartridge hot runner nozzle having two heaters**

(57) The present invention provides an electrically heated nozzle (22) for injection molding which is insulated to prevent conduction of electricity and loss of thermal transmission to the casing, wherein a first heater (80) and a second heater (90) are in thermal contact with said nozzle. At least a part of the electrical insulation

comprises a layer of dielectric insulator material (84) with an electrical resistance wire heater (80) wound spirally thereabout and another dielectric insulator layer (86) thereover. The first and second insulating layers (84, 86) may be provided by spraying or through telescoping, self-supporting sleeves.

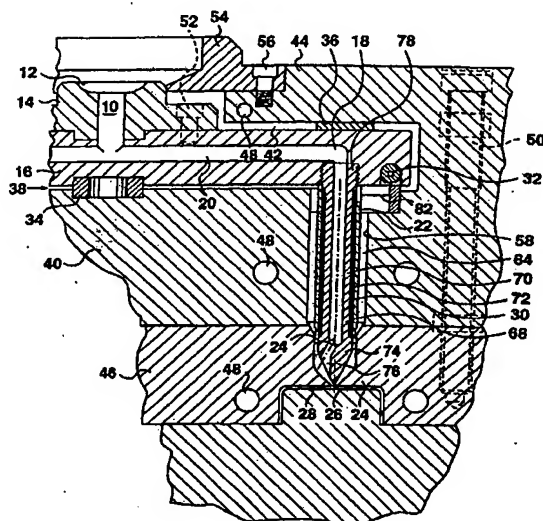


FIG. 2

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EUROPEAN SEARCH REPORT

Application Number
EP 02 02 7569

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
X	US 3 812 323 A (PINK F) 21 May 1974 (1974-05-21) * column 3, line 5 - line 32 * * figures 2,3 *	1-5	B29C45/27
A	US 4 120 086 A (CRANDELL WALTER R) 17 October 1978 (1978-10-17) * column 4, line 6 - line 51 *	2,5	
E	WO 01 15884 A (BOEKEL FRANCISCUS ANTONIUS JOZ) 8 March 2001 (2001-03-08) * page 10, line 16 - line 22 * * claim 19 *	1	
X	DE 86 20 956 U (JETFORM HEISSKANALNORMALIEN) 27 November 1986 (1986-11-27) * page 8, paragraph 2 - page 11, paragraph 1 * * figure 1 *	1	
A	DE 195 22 716 C (HOTSET HEIZPATRONEN ZUBEHOER) 19 September 1996 (1996-09-19) * column 3, line 33 - line 46 *	5	
X	EP 0 444 748 A (EUROTOOL BV) 4 September 1991 (1991-09-04) * column 3, line 28 - line 43 *	1	TECHNICAL FIELDS SEARCHED (Int.Cl.7)
A	US 5 136 141 A (TRAKAS PANOS) 4 August 1992 (1992-08-04) * figure 4B * * column 4, line 22 - line 37 *	5	B29C
The present search report has been drawn up for all claims			
Place of search MUNICH		Date of completion of the search 21 March 2003	Examiner Alink, M
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

EPO FORM 1 302 295 A3 (04/02/01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 02 02 7569

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The members are as contained in the European Patent Office EDP file on
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21-03-2003

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 3812323	A	21-05-1974	NONE	
US 4120086	A	17-10-1978	US 3970821 A	20-07-1976
			DE 2542162 A1	22-04-1976
			IT 1040192 B	20-12-1979
			US 4641423 A	10-02-1987
			US 4304544 A	08-12-1981
WO 0115884	A	08-03-2001	NL 1012925 C2	28-02-2001
			AU 6879800 A	26-03-2001
			EP 1244541 A2	02-10-2002
			WO 0115884 A2	08-03-2001
DE 8620956	U	27-11-1986	DE 8620956 U1	27-11-1986
DE 19522716	C	19-09-1996	DE 19522716 C1	19-09-1996
EP 0444748	A	04-09-1991	NL 9000488 A	01-10-1991
			EP 0444748 A1	04-09-1991
			US 5113576 A	19-05-1992
US 5136141	A	04-08-1992	NONE	

EPO FORM P0453

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82